

(3) For hybrid electric vehicles using the modified 5-cycle highway calculation in paragraph (e)(2) of this section, the equation in paragraph (e)(2)(ii)(A) of this section applies except that the equation for Start CREE₇₅ will be replaced with one of the following:

(i) The equation for Start CREE₇₅ for hybrids tested according to the 4-bag FTP is:

$$\text{Start CREE}_{75} = 3.6 \times (\text{Bag 1 CREE}_{75} - \text{Bag 3 CREE}_{75} + 3.9 \times (\text{Bag 2 CREE}_{75} - \text{Bag 4 CREE}_{75}))$$

(ii) The equation for Start CREE₇₅ for hybrids tested according to the 2-bag FTP is:

$$\text{Start CREE}_{75} = 7.5 \times (\text{Bag } \frac{1}{2} \text{ CREE}_{75} - \text{Bag } \frac{3}{4} \text{ CREE}_{75})$$

(4) To determine the City and Highway CO₂ emissions, use the appropriate CO₂ grams/mile values instead of CREE values in the equations in paragraphs (f)(1) through (3) of this section.

(5) Terms used in the equations in this paragraph (e) are defined as follows:

Bag Y CREE_x = the carbon-related exhaust emissions in grams per mile during bag Y of the FTP test conducted at an ambient temperature X of 75 °F or 20 °F. US06 City CREE = carbon-related exhaust emissions in grams per mile over the City portion of the US06 test.

SC03 CREE = carbon-related exhaust emissions in grams per mile over the SC03 test.

US06 Highway CREE = carbon-related exhaust emissions in grams per mile over the Highway portion of the US06 test.

HFET CREE = carbon-related exhaust emissions in grams per mile over the HFET test.

Bag X/Y CREE₇₅ = carbon-related exhaust emissions in grams per mile of fuel during combined phases X and Y of the FTP test conducted at an ambient temperature of 75 °F.

[76 FR 39538, July 6, 2011, as amended at 76 FR 57379, Sept. 15, 2011]

§ 600.115–11 Criteria for determining the fuel economy label calculation method.

This section provides the criteria to determine if the derived 5-cycle method for determining fuel economy label values, as specified in § 600.210–08(a)(2) or (b)(2) or § 600.210–12(a)(2) or (b)(2), as applicable, may be used to determine label values. Separate criteria apply to city and highway fuel economy for each test group. The provisions of this section are optional. If this option is not chosen, or if the criteria provided in this section are not met, fuel economy label values must be determined according to the vehicle-specific 5-cycle method specified in § 600.210–08(a)(1) or (b)(1) or § 600.210–12(a)(1) or (b)(1), as applicable. However, dedicated alternative-fuel vehicles, dual fuel vehicles when operating on the alternative fuel, plug-in hybrid electric vehicles while operating in charge-depleting mode, MDPVs, and vehicles imported by Independent Commercial Importers may use the derived 5-cycle method for determining fuel economy label values whether or not the criteria provided in this section are met. Manufacturers may alternatively account for this effect by multiplying 2-cycle fuel economy values by 0.7 and dividing 2-cycle CO₂ emission values by 0.7.

(a) *City fuel economy criterion.* (1) For each test group certified for emission compliance under § 86.1848 of this chapter, the FTP, HFET, US06, SC03 and Cold FTP tests determined to be official under § 86.1835 of this chapter are used to calculate the vehicle-specific 5-cycle city fuel economy which is then compared to the derived 5-cycle city fuel economy, as follows:

(i) The vehicle-specific 5-cycle city fuel economy from the official FTP, HFET, US06, SC03 and Cold FTP tests for the test group is determined according to the provisions of § 600.114–08(a) or (c) or § 600.114–12(a) or (c) and rounded to the nearest one tenth of a mile per gallon.

(ii) Using the same FTP data as used in paragraph (a)(1)(i) of this section, the corresponding derived 5-cycle city fuel economy is calculated according to the following equation:

$$\text{Derived 5-cycle city fuel economy} = \frac{1}{\left\{ \text{City Intercept} \right\} + \frac{\left\{ \text{City Slope} \right\}}{\text{FTP FE}}}$$

Where:

City Intercept = Intercept determined by the Administrator. See § 600.210-08(a)(2)(iii) or § 600.210-12(a)(2)(iii).

City Slope = Slope determined by the Administrator. See § 600.210-08(a)(2)(iii) or § 600.210-12(a)(2)(ii).

FTP FE = the FTP-based city fuel economy from the official test used for certification compliance, determined under § 600.113-08(a), rounded to the nearest tenth.

(2) The derived 5-cycle fuel economy value determined in paragraph (a)(1)(ii) of this section is multiplied by 0.96 and rounded to the nearest one tenth of a mile per gallon.

(3) If the vehicle-specific 5-cycle city fuel economy determined in paragraph (a)(1)(i) of this section is greater than or equal to the value determined in paragraph (a)(2) of this section, then the manufacturer may base the city fuel economy estimates for the model types covered by the test group on the derived 5-cycle method specified in § 600.210-08(a)(2) or (b)(2) or § 600.210-12(a)(2) or (b)(2), as applicable.

(b) *Highway fuel economy criterion.* The determination for highway fuel economy depends upon the outcome of the determination for city fuel economy in paragraph (a)(3) of this section for each test group.

(1) If the city determination for a test group made in paragraph (a)(3) of this section does not allow the use of the derived 5-cycle method, then the highway fuel economy values for all

model types represented by the test group are likewise not allowed to be determined using the derived 5-cycle method, and must be determined according to the vehicle-specific 5-cycle method specified in § 600.210-08(a)(1) or (b)(1) or § 600.210-12(a)(1) or (b)(1), as applicable.

(2) If the city determination made in paragraph (a)(3) of this section allows the use of the derived 5-cycle method, a separate determination is made for the highway fuel economy labeling method as follows:

(i) For each test group certified for emission compliance under § 86.1848 of this chapter, the FTP, HFET, US06, SC03 and Cold FTP tests determined to be official under § 86.1835 of this chapter are used to calculate the vehicle-specific 5-cycle highway fuel economy, which is then compared to the derived 5-cycle highway fuel economy, as follows:

(A) The vehicle-specific 5-cycle highway fuel economy from the official FTP, HFET, US06, SC03 and Cold FTP tests for the test group is determined according to the provisions of § 600.114-08(b)(1) or § 600.114-12(b)(1) and rounded to the nearest one tenth of a mile per gallon.

(B) Using the same HFET data as used in paragraph (b)(2)(i)(A) of this section, the corresponding derived 5-cycle highway fuel economy is calculated using the following equation:

$$\text{Derived 5-cycle highway fuel economy} = \frac{1}{\left\{ \text{Highway Intercept} \right\} + \frac{\left\{ \text{Highway Slope} \right\}}{\text{HFET FE}}}$$

Where:

Highway Intercept = Intercept determined by the Administrator. See § 600.210-08(a)(2)(iii) or § 600.210-12(a)(2)(iii).

Highway Slope = Slope determined by the Administrator. See § 600.210-08(a)(2)(iii) or § 600.210-12(a)(2)(iii).

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HFET FE = the HFET-based highway fuel economy determined under § 600.113–08(b), rounded to the nearest tenth.

(ii) The derived 5-cycle highway fuel economy calculated in paragraph (b)(2)(i)(B) of this section is multiplied by 0.95 and rounded to the nearest one tenth of a mile per gallon.

(iii) (A) If the vehicle-specific 5-cycle highway fuel economy of the vehicle tested in paragraph (b)(2)(i)(A) of this section is greater than or equal to the value determined in paragraph (b)(2)(ii) of this section, then the manufacturer may base the highway fuel economy estimates for the model types covered by the test group on the derived 5-cycle method specified in § 600.210–08(a)(2) or (b)(2) or § 600.210–12(a)(2) or (b)(2), as applicable.

(B) If the vehicle-specific 5-cycle highway fuel economy determined in paragraph (b)(2)(i)(A) of this section is less than the value determined in paragraph (b)(2)(ii) of this section, the manufacturer may determine the highway fuel economy for the model types covered by the test group on the modified 5-cycle equation specified in § 600.114–08(b)(2) or § 600.114–12(b)(2).

(c) The manufacturer will apply the criteria in paragraph (a) and (b) of this section to every test group for each model year.

(d) The tests used to make the evaluations in paragraphs (a) and (b) of this section will be the procedures for official test determinations under § 86.1835. Adjustments and/or substitutions to the official test data may be made with advance approval of the Administrator.

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§ 600.116–12 Special procedures related to electric vehicles and hybrid electric vehicles.

(a) Determine fuel economy values for electric vehicles as specified in §§ 600.210 and 600.311 using the procedures of SAE J1634 (incorporated by reference in § 600.011), with the following clarifications and modifications:

(1) Use one of the following approaches to define end-of-test criteria for vehicles whose maximum speed is less than the maximum speed specified in the driving schedule, where the vehi-

cle's maximum speed is determined, to the nearest 0.1 mph, from observing the highest speed over the first duty cycle (FTP, HFET, etc.):

(i) If the vehicle can follow the driving schedule within the speed tolerances specified in § 86.115 of this chapter up to its maximum speed, the end-of-test criterion is based on the point at which the vehicle can no longer meet the specified speed tolerances up to and including its maximum speed.

(ii) If the vehicle cannot follow the driving schedule within the speed tolerances specified in § 86.115 of this chapter up to its maximum speed, the end-of-test criterion is based on the following procedure:

(A) Measure and record the vehicle's speed (to the nearest 0.1 mph) while making a best effort to follow the specified driving schedule.

(B) This recorded sequence of driving speeds becomes the driving schedule for the test vehicle. Apply the end-of-test criterion based on the point at which the vehicle can no longer meet the specified speed tolerances over this new driving schedule. The driving to establish the new driving schedule may be done separately, or as part of the measurement procedure.

(2) Soak time between repeat duty cycles (four-bag FTP, HFET, etc.) may be up to 30 minutes. No recharging may occur during the soak time.

(3) Recharging the vehicle's battery must start within three hours after the end of testing.

(4) Do not apply the C coefficient adjustment specified in Section 4.4.2.

(5) We may approve alternate measurement procedures with respect to electric vehicles if they are necessary or appropriate for meeting the objectives of this part. For example, we may approve the use of an earlier version of SAE J1634 for carryover vehicles, or if you show that it is equivalent for your vehicle.

(6) All label values related to fuel economy, energy consumption, and range must be based on 5-cycle testing or on values adjusted to be equivalent to 5-cycle results.

(b) Determine performance values for hybrid electric vehicles that have no plug-in capability as specified in